

WHAT IS CLAIMED IS:

1. An image processing apparatus, comprising:

a communication unit configured to exchange data with an external device;

5 an attribute determination unit that determines an image attribute of a first image signal to generate an attribute signal indicating the image attribute;

an embedding unit that embeds the attribute signal in the first image signal in a predetermined format to obtain a second image

10 signal; and

a storage unit that stores the attribute signal and one of the first image signal and the second image signal, wherein

the second image signal is transmitted to the external device through the communication unit.

15

2. The image processing apparatus according to claim 1, further comprising:

an extractor that extracts the attribute signal from the second image signal; and

20 an image processor that performs predetermined image processing on one of the first image signal and the second image signal that are stored in the storage unit, based on at least one of the attribute signal stored and the attribute signal extracted.

25

3. The image processing apparatus according to claim 2, further comprising:

a first compressor that irreversibly compresses one of the first image signal and the second image signal to store the image signal  
5 compressed in the storage unit;

a second compressor that reversibly compresses the attribute signal to store the attribute signal compressed in the storage unit;

a first decompressor that decompresses the second image signal compressed; and

10 a second decompressor that decompresses the attribute signal compressed, wherein

the extractor extracts the attribute signal from the second image signal decompressed, and

the image processor performs predetermined image processing  
15 on the second image signal decompressed, based on the attribute signal decompressed.

4. The image processing apparatus according to claim 2, further comprising:

20 a compressor that irreversibly compresses one of the first image signal and the second image signal to store the image signal compressed in the storage unit; and

a decompressor that decompresses the second image signal compressed, wherein

25 the extractor extracts the attribute signal from the second image

signal decompressed.

5. The image processing apparatus according to claim 2, wherein  
the predetermined image processing includes undercolor removal-black  
5 generation.

6. The image processing apparatus according to claim 2, wherein  
the predetermined image processing includes at least one of color  
correction, undercolor removal-black generation,  $\gamma$  correction,  
10 pseudo-half-tone processing, and filtering.

7. The image processing apparatus according to claim 2, wherein  
the second image signal is edited in the external device,  
the communication unit receives the second image signal edited  
15 from the external device,  
the storage unit stores the second image signal edited,  
the extractor extracts the attribute signal from the second image  
signal edited, and  
the image processor performs predetermined image processing  
20 on the second image signal edited, based on the attribute signal  
extracted.

8. The image processing apparatus according to claim 2, wherein  
the attribute signal includes a first identification signal and a  
25 second identification signal that indicate different image attributes,

the embedding unit embeds the first identification signal in the first image signal in a predetermined format to obtain a third image signal,

the storage unit stores the third image signal and the second  
5 identification signal,

the extractor extracts the first identification signal from the third image signal, and

the image processor performs predetermined image processing on the third image signal stored, based on the second identification  
10 signal stored and the first identification signal extracted.

9. The image processing apparatus according to claim 1, further comprising a controller that controls whether to store the attribute signal in the storage unit, depending on an image processing mode.  
15

10. The image processing apparatus according to claim 1, further comprising a controller that controls whether to embed the attribute signal in the image signal in the embedding unit, depending on an image processing mode.  
20

11. The image processing apparatus according to claim 1, wherein the storage unit stores the first image signal and the attribute signal,  
the embedding unit embeds the attribute signal in the first image  
25 signal stored in the storage unit in a predetermined format to obtain a

third image signal, and

the communication unit transmits the third image signal to the external device.

5 12. The image processing apparatus according to claim 1, further comprising a resolution converter that converts a resolution of the attribute signal to a lower resolution.

13. The image processing apparatus according to claim 1, wherein  
10 the attribute signal includes a black-character identification signal indicating a black character area.

14. An image processing method, comprising:  
determining an image attribute of a first image signal to  
15 generate an attribute signal indicating the image attribute;  
embedding the attribute signal in the first image signal in a predetermined format to obtain a second image signal;  
storing the attribute signal and one of the first image signal and the second image signal; and  
20 transmitting the second image signal to an external device.

15. The image processing method according to claim 14, further comprising:  
extracting the attribute signal from the second image signal; and  
25 performing predetermined image processing on one of the first

image signal and the second image signal that are stored in the storage unit, based on at least one of the attribute signal stored and the attribute signal extracted.

5    16.    The image processing method according to claim 14, further comprising converting a resolution of the attribute signal to a lower resolution.

10    17.    The image processing method according to claim 14, wherein the attribute signal includes a black-character identification signal indicating a black character area.

15    18.    A computer program product including computer executable instructions stored on a computer readable medium, wherein the instructions, when executed by the computer, cause the computer to perform:

          determining an image attribute of a first image signal to generate an attribute signal indicating the image attribute;

20          embedding the attribute signal in the first image signal in a predetermined format to obtain a second image signal;

          storing the attribute signal and one of the first image signal and the second image signal; and

          transmitting the second image signal to an external device.

19. The computer program product according to claim 18, wherein the instructions further cause the computer to perform:

extracting the attribute signal from the second image signal; and  
performing predetermined image processing on one of the first  
5 image signal and the second image signal that are stored in the storage  
unit, based on at least one of the attribute signal stored and the  
attribute signal extracted.

20. The computer program product according to claim 18, wherein  
10 the instructions further cause the computer to perform converting a  
resolution of the attribute signal to a lower resolution.

21. The computer program product according to claim 18, wherein  
the attribute signal includes a black-character identification signal  
15 indicating a black character area.